

**WHAT IS CLAIMED IS**

1. A gene encoding cyclic lipopeptide acylase, which comprises the entirety or a part of the following (a), (b) or (c):
  - (a) a DNA consisting of the nucleotide sequence depicted in  
5           SEQ ID No. 1
  - (b) a DNA capable of hybridizing with the DNA of the above-mentioned (a) under stringent conditions
  - (c) a DNA having at least (1) 60% identity, (2) 70%  
10           identity, (3) 80% identity, (4) 90% identity or (5) 95%  
            identity with the nucleotide sequence depicted in SEQ  
            ID No. 1.
2. A gene encoding a protein of the following (a) or (b) or a part thereof:
  - 15       (a) a protein consisting of the amino acid sequence  
          depicted in SEQ ID No. 2
  - (b) a protein having an amino acid sequence involving  
          deletion, substitution or addition of one to several  
          amino acid(s) in the amino acid sequence (a), which  
20       protein has a cyclic lipopeptide acylase activity.
3. A recombinant vector comprising the gene of claim 1 or 2.
4. An expression vector functionally comprising the gene of  
25 claim 1 or 2.
5. A transformant obtained by transforming a host cell with the vector of claim 3 or 4.
- 30 6. A method of producing cyclic lipopeptide acylase, which comprises
  - culturing a host cell transformed with the expression  
          vector of claim 4, and
  - harvesting, from the obtained culture, cyclic lipopeptide

acylase capable of catalyzing a reaction to deacylate a side chain acylamino group of a cyclic lipopeptide substance into an amino group.

5 7. A cyclic lipopeptide acylase produced by the production method of claim 6.

8. A gene encoding cyclic lipopeptide acylase, which comprises the entirety or a part of the following (a), (b) or (c):

- 10 (a) a DNA consisting of a nucleotide sequence shown by nucleotide No. 1065 to 3359 in the nucleotide sequence depicted in SEQ ID No. 1
- (b) a DNA capable of hybridizing with the DNA of the above-mentioned (a) under stringent conditions
- 15 (c) a DNA having at least (1) 60% identity, (2) 70% identity, (3) 80% identity, (4) 90% identity or (5) 95% identity with the nucleotide sequence shown by nucleotide No. 1065 to 3359 in the nucleotide sequence depicted in SEQ ID No. 1.

20

9. A gene encoding a protein of the following (a) or (b):

- (a) a protein consisting of amino acid number from -1 or 1 to 765 in the amino acid sequence depicted in SEQ ID No. 2
- 25 (b) a protein having an amino acid sequence involving deletion, substitution or addition of one to several amino acid(s) in the amino acid sequence (a), which protein has a cyclic lipopeptide acylase activity.

30 10. A recombinant vector comprising the gene of claim 8 or 9.

11. An expression vector functionally comprising the gene of claim 8 or 9.

12. A transformant obtained by transforming a host cell with a vector of claim 10 or 11.

13. A method of producing cyclic lipopeptide acylase, which  
5 comprises

culturing a host cell transformed with the expression  
vector of claim 11, and  
harvesting, from the obtained culture, cyclic lipopeptide  
acylase capable of catalyzing a reaction to deacylate a  
10 side chain acylamino group of a cyclic lipopeptide  
substance into an amino group.

14. A cyclic lipopeptide acylase produced by the production  
method of claim 13.

15

15. A cyclic lipopeptide acylase encoded by a DNA consisting  
of a nucleotide sequence shown by nucleotide No. 1065 to 3359  
in the nucleotide sequence depicted in SEQ ID No. 1.

20 16. A cyclic lipopeptide acylase which is encoded by a DNA  
having at least (1) 60% identity, (2) 70% identity, (3) 80%  
identity, (4) 90% identity or (5) 95% identity with the  
nucleotide sequence shown by nucleotide No. 1065 to 3359 in  
the nucleotide sequence depicted in SEQ ID No. 1.

25

17. A protein of the following (a) or (b):

(a) a protein consisting of amino acid No. -1 to 200 in the  
amino acid sequence depicted in SEQ ID No. 2

(b) a protein having an amino acid sequence involving  
30 deletion, substitution or addition of one to several  
amino acid(s) in the amino acid sequence (a), which  
protein forms a complex with the protein of the  
following (c) or (d) to show a cyclic lipopeptide  
acylase activity:

- (c) a protein consisting of amino acid No. 201 to 765 in the amino acid sequence depicted in SEQ ID No. 2
  - (d) a protein having an amino acid sequence involving deletion, substitution or addition of one to several amino acid(s) in the amino acid sequence (c), which protein forms a complex with the polypeptide of the above-mentioned (a) or (b) to show a cyclic lipopeptide acylase activity.
- 10 18. A protein of the following (c) or (d):
- (c) a protein consisting of amino acid No. 201 to 765 in the amino acid sequence depicted in SEQ ID No. 2
  - (d) a protein having an amino acid sequence involving deletion, substitution or addition of one to several amino acid(s) in the amino acid sequence (c), which protein forms a complex with the protein of (a) or (b) below to show a cyclic lipopeptide acylase activity:
- (a) a protein consisting of amino acid number from -1 or 1 to 200 in the amino acid sequence depicted in SEQ ID No. 2
  - (b) a protein having an amino acid sequence involving deletion, substitution or addition of one to several amino acid(s) in the amino acid sequence (a), which protein forms a complex with the protein of the above-mentioned (c) or (d) to show a cyclic lipopeptide acylase activity.
19. A DNA encoding the protein of claim 17.
- 20 20. A DNA encoding the protein of claim 18.
21. A recombinant vector comprising at least one of claim 19 and claim 20.

22. An expression vector comprising at least one of claim 19 and 20.

23. A transformant obtained by transforming a host cell with the vector of claim 21 or 22.

24. A method of producing cyclic lipopeptide acylase, which comprises

10 culturing a host cell transformed with the expression vector of claim 22, and harvesting, from the obtained culture, cyclic lipopeptide acylase capable of catalyzing a reaction to deacylate a side chain acylamino group of a cyclic lipopeptide substance into an amino group.

15

25. A cyclic lipopeptide acylase produced by the production method of claim 24.

20 26. A method for deacylating a side chain acylamino group of a cyclic lipopeptide substance into an amino group, which method comprising culturing a host cell transformed with the expression vector of claim 4, 11 or 22, and bringing the cyclic lipopeptide substance into contact with the obtained culture or a treated product thereof.

25